

Page 74, line 25, delete "systems" and insert - - system - -.

In the Claims

Please amend claims 17, 19 and 21 as follows:

1 ~~Sub~~ 17. (Amended) The signal processing system of claim 16 wherein the voice exchange
2 further comprises [comprising] a comfort noise estimator which generates comfort noise
3 parameters when the voice activity detector suppresses the voice signals without speech.

1 ~~Sub~~ 19. (Amended) The signal processing system of claim 18 wherein the voice exchange
2 further comprises [comprising] a non-linear processor which mutes the incoming voice signals
3 when the incoming voice signals do not comprise speech and the echo canceller detects the
4 decoded voice signals with speech.

1 ~~Sub~~ 21. (Amended) The signal processing system of claim 20 wherein the voice exchange
2 further comprises [comprising] a tone exchange comprising a DTMF detector capable of
3 detecting a DTMF signal from the network line and generating a DTMF packet for the packet
4 based network in response to the DMTF signal, the DTMF detector muting the voice signal
5 packets when a DTMF signal is detected.

Please add claims 129-174 as follows:

1 ~~Sub~~ 129. A signal processing system, comprising:
2 voice means for exchanging voice signals between a network line and a packet
3 based network; and
4 full duplex data means for exchanging data from the network line with
5 demodulated data signals from the packet based network. --

1 -- 130. The signal processing system of claim 129 further comprising discrimination
2 means for discriminating between the voice signals and the data from the network line, the
3 voice means being enabled for the voice signals and the data means being enabled for the data.
4 --

1 -- 131. The signal processing system of claim 129 wherein the data from the network
2 line are modulated by a voiceband carrier, and the data means comprises data pump means
3 for demodulating the data from the network line for transmission on the packet based network
4 and remodulating the data from the packet based network with the voiceband carrier for
5 transmission on the network line. --

1 -- 132. The signal processing system of claim 131 wherein the data means comprises
2 compensating means for compensating for delay variation of the data from the packet based
3 network --

1 -- 133. The signal processing system of claim 132 wherein the data pump means
2 transmits the received data to the network line at a transmit rate. --

1 -- 134. The signal processing system of claim 133 wherein the compensating means
2 compensates for the delay variation of the data by buffering the data, and wherein the data
3 means further comprises means for adaptively adjusting the transmit rate of the data pump
4 means as a function of the data buffered. --

1 -- 135. The signal processing system of claim 131 wherein the compensating means
2 compensates for the delay variation of the data by buffering the data, and wherein the data
3 means further comprises means for spoofing the data pump means when the data buffered is
4 below a threshold. --

1 -- 136. The signal processing system of claim 129 wherein the voice means comprises
2 compensation means for compensating for delay variation of the voice signals from the packet
3 based network. --

1 -- 137. The signal processing system of claim 136 wherein the compensating means
2 comprises voice queue means for buffering the received voice signals for a holding time, and
3 voice synchronizer means for adaptively adjusting the holding time of the voice queue means.
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1 -- 138. The signal processing system of claim 137 further comprising DTMF means for
2 exchanging DTMF signals between the network line and the packet based network, the DTMF
3 means comprising queue means for buffering the DTMF signals from the packet based
4 network, and means for generating a DTMF tone responsive to the buffered DMTF signals,
5 the queue means outputting a signal to the voice synchronizer means to suppress the buffered
6 voice signals when the DTMF signals are in the queue means. --

1 -- 139. The signal processing system of claim 129 wherein the voice means comprises
2 means for decoding the voice signals from the packet based network for transmission to the
3 network line, means for detecting voice signals without speech, and noise generation means
4 for inserting comfort noise in place of the voice signals without speech. --

1 -- 140. The signal processing system of claim 139 wherein the voice means further
2 comprises a means for estimating comfort noise parameters from at least a portion of the voice
3 signals without speech, the noise generation means being responsive to the comfort noise
4 parameters. --

1 -- 141. The signal processing system of claim 129 wherein the voice means comprises
2 means for decoding the voice signals from the packet based network for transmission to the
3 network line, means for detecting lost voice signals, and means for processing the voice signals
4 to compensate for the lost voice signals. --

1 -- 142. The signal processing system of claim 129 wherein the voice means comprises
2 means for encoding the voice signals from the network line for transmission on the packet
3 based network, and means for suppressing the voice signals without speech. --

1 -- 143. The signal processing system of claim 142 wherein the voice means further
2 comprises means for generating comfort noise parameters when the voice signals without
3 speech are suppressed. --

1 -- 144. The signal processing system of claim 129 wherein the voice means further
2 comprises means for decoding the voice signals from the packet based network, and means for
3 cancelling decoded voice signal echos on incoming voice signals from the network line. --

1 -- 145. The signal processing system of claim 144 wherein the voice means further
2 comprising means for muting the incoming voice signals when the incoming voice signals do
3 not comprise speech and the decoded voice signals comprise speech. --

1 -- 146. The signal processing system of claim 129 wherein the voice means comprises
2 means for encoding the voice signals from the network line into voice signal packets for the
3 packet based network. --

1 -- 147. The signal processing system of claim 146 wherein the voice means further
2 comprises means for detecting a DTMF signal from the network line, generating a DTMF
3 packet for the packet based network in response to the DMTF signal, and muting the voice
4 signal packets when a DTMF signal is detected. --

1 -- 148. The signal processing system of claim 129 further comprising means for
2 exchanging fax signals from the network line with demodulated fax signals from the packet
3 based network --

1 -- 149. The signal processing system of claim 148 wherein the fax signals from the
2 network line are modulated by a voiceband carrier, and the fax means comprises data pump
3 means for demodulating the fax signals from the network line for transmission on the packet
4 based network, and remodulating the fax signals from the packet based network with the
5 voiceband carrier for transmission on the network line. --

1 -- 150. The signal processing system of claim 148 wherein the discrimination means
2 further comprises means for discriminating the fax signals from the network line, the fax
3 means being enabled for the fax signals. --

1 -- 151. The signal processing system of claim 129 wherein the data means comprises
2 means for setting a data rate of a telephony device coupled to the network line in response to
3 received data rate codes. --

1 -- 152. Computer-readable media embodying a program of instructions executable by
2 a computer to perform a method of processing signals, the method comprising:
3 exchanging voice signals between a network line and a packet based network;
4 and
5 simultaneously exchanging data signals from the network line with demodulated
6 data signals from the packet based network. --

1 ~~153.~~ 153. The computer-readable media of claim 152 wherein the method further
2 comprises discriminating between the voice signals and the data signals from the network
3 line, and selectively invoking at least one of the voice signal exchange and the data signal
4 exchange based on said discrimination. --

1 -- 154. The computer-readable media of claim 152 wherein the data signals from the
2 network line are modulated by a voiceband carrier, and the data exchange comprises
3 demodulating the data signals from the network line for transmission on the packet based
4 network and remodulating the data signals from the packet based network with the voiceband
5 carrier for transmission on the network line. --

1 -- 155. The computer-readable media of claim 152 wherein the voice exchange further
2 comprises receiving packets of the signals of varying delay from the packet based network, and
3 compensating for the delay variation of the signal packets. --

1 -- 156. The computer-readable media of claim 155 wherein the signal packet
2 compensation comprises generating an isochronous stream of the received signals. --

1 -- 157. The computer-readable media of claim 155 wherein the signal packet
2 compensation comprises adaptively buffering the received signals. --

1 -- 158. The computer-readable media of claim 152 wherein the voice signal exchange
2 comprises receiving packets of the voice signals from the packet based network, identifying
3 the received voice signals without speech, and inserting comfort noise in place of the identified
4 voice signals without speech. --

1 -- 159. The computer-readable media of claim 156 wherein the comfort noise insertion
2 comprises estimating comfort noise in response to at least a portion of the received voice
3 signals without speech. --

1 -- 160. The computer-readable media of claim 152 wherein the voice signal exchange
2 comprises receiving packets of the voice signals from the packet based network, detecting lost
3 voice signals, decoding the received voice signals for transmission to the network line, and
4 processing the decoded voice signals to compensate for the lost voice signals. --

1 -- 161. The computer-readable media of claim 152 wherein the method further
2 comprises exchanging DTMF signals between the network line and the packet based network.
3 --

1 -- 162. The computer-readable media of claim 161 wherein the DTMF signal exchange
2 comprises receiving packets of the DTMF signals from the packet based network, and
3 generating at least one DTMF tone from the DTMF signals. --

1 -- 163. The computer-readable media of claim 162 wherein the voice signal exchange
2 comprises receiving packets of the voice signals from the packet based network, and the DTMF
3 signal exchange further comprises muting the received voice signals when the DTMF signal
4 packets are received. --

1 -- 164. The computer-readable media of claim 152 wherein the voice signal exchange
2 comprises decoding packets of the voice signals from the packet based network, receiving voice
3 signals from the network line and canceling decoded voice signal echos on the received voice
4 signals. --

1 -- 165. The computer-readable media of claim 152 wherein the voice signal exchange
2 comprises encoding the voice signals from the network line into voice signal packets for
3 transmission on the packet based network. --

1 -- 166. The computer-readable media of claim 165 wherein the method further
2 comprises exchanging DTMF signals between the network line and the packet based network,
3 wherein the DTMF signal exchange comprises detecting DTMF signals from the network line,
4 generating DTMF signal packets for the packet based network in response to the DTMF
5 signals, and muting the voice signal packets when the DTMF signals are detected. --

1 -- 167. The computer-readable media of claim 152 wherein the voice signal exchange
2 comprises receiving the voice signals from the network line and suppressing the received voice
3 signals when the received voice signals do not comprise speech. --

1 -- 168. The computer-readable media of claim 167 wherein the suppression of the
2 received voice signals comprises generating comfort noise parameters in place thereof. --

1 -- 169. The computer-readable media of claim 152 wherein the method further
2 comprises exchanging fax signals from the network line with demodulated fax signals from the
3 packet based network --

1 -- 170. The computer-readable media of claim 169 wherein the fax signals from the
2 network line are modulated by a voiceband carrier, and the fax exchange comprises
3 demodulating the fax signals from the network line for transmission on the packet based
4 network and remodulating the fax signals from the packet based network with the voiceband
5 carrier for transmission on the network line. --

1 -- 171. The computer-readable media of claim 170 wherein the signal discrimination
2 further comprises discriminating the fax signals from the network line, and selectively
3 invoking the fax exchange based on said discrimination. --

1 -- 172. The computer-readable media of claim 152 wherein the data signal exchange
2 further comprises receiving packets of the data signals from the packet based network, holding
3 a number of the received data signals in a buffer, and generating spoof data when the number
4 of the data signals in the buffer is below a threshold. --

1 -- 173. The computer-readable media of claim 152 wherein the data signal exchange
2 further comprises receiving packets of the data signals from the packet based network, holding
3 a number of the received data signals in a buffer, transmitting the buffered data signals to the
4 network line at a transmit rate, and adaptively adjusting the transmit rate in response the
5 number of the received data signals in the buffer. --

1 -- 174. The computer-readable media of claim 152 wherein the data signal exchange
2 further comprises receiving data rate codes from the packet based network, and setting a data
3 rate of a telephony device coupled to the network line in response to the received data rate
4 codes. --

REMARKS

It is respectfully requested that the foregoing Preliminary Amendment be entered prior to examination.

Respectfully submitted,

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